ABSTRACT OF THE DISCLOSURE

Disclosed herein is a tubular endovascular stent comprising a plurality of annular segments connected by one or more bridging elements. Each annular segment takes forms of periodic wavelets with a plurality of alternating symmetric peaks and valleys, preferably consisting of circular arc segments of large radii connected tangentially with straight segments to minimize stress concentration when the stent undergoes radial deformation, transverse to the longitudinal axis of the stent. The points of connection between the bridging elements and adjacent annular segments are so designed that deformations of the bridging elements remain negligible as the stent deforms radially, namely, the longitudinal dimension of the stent does not vary during the radial expansion or contraction of the stent. Hence, the radial strength and the longitudinal flexibility of the stent made according to the principles disclosed by the present invention can be independently controlled by the design parameters for the annular segments and bridging elements, without compromising the longitudinal dimensional stability of the stent. Since stress concentration and deformation in the stent can lead to restenosis, stent made from the invention disclosed here can reduce the probability of restenosis.